GRUMMAN

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Purr-fect. *During 1981, this Super Tomcat equipped with GE F-110 prototype engines underwent successful flight tests at Calverton. Production GE engines will be featured on the F-14D Tomcat later in this decade.*

Get green light for F-14D, A-6E Upgrade

— pg. 3

Sharpening A-6's offensive edge

Flying around-the-clock with unmatched operating range, the Grumman A-6 Intruder continues to set the standards for the all-weather air-to-surface attack mission. A dependable member of the U.S. Navy's air arm since the early 1960's, the Intruder has undergone many changes to keep its offensive edge sharp in the attack environment.

Technological facelift

As part of an A-6E upgrade program contract recently signed by Grumman and the Navy, the Intruder is set for another technological facelift. The airplane will be getting a new radar, an updated avionics package and new engines, among other modifications.

"The basic idea of the upgrade program is to retain all of the present A-6E's capabilities while adding some of the latest advances in the field of aircraft development," says Dan Collins, A-6 Program vice president. "The upgrading will increase the Intruder's stand-off weapon delivery capability, improve its reliability and maintainability, reduce vulnerability while increasing survivability, and offer an air-to-air offensive capability," explains Collins.

"Essentially, the Navy has asked us to upgrade what they consider to be a very fine airplane in order to take the A-6E configuration into the 1990s and beyond," he adds.

Brand new radar

The Intruder will be getting a brand new radar system that is designed to be significantly more reliable and powerful than that in the current A-6E. The new radar will be extremely jam resistant and will incorporate what is known as SAR — for "synthetic aperture radar" capability and ISAR — inverse SAR — with very high resolution visual displays. In addition, the aircraft's radar will offer air-to-air target detection and tracking capability which it does not currently possess.

The new radar system will be provided by the winner of a contract competition, run by Grumman, between several of the top companies in the industry. Proposals are expected from: Emerson; General Electric; Hughes; Norden — with a modification of its radar system which is in the present A-6E; and Westinghouse.

"In keeping with the Navy's emphasis that all the modifications be kept within research-and-development budget constraints, we are looking for a new radar package with 'off-the-shelf' technology as opposed to the prohibitive expense of a whole new system design," comments Tom Zehner, deputy program director for the A-6E. "The new radar will provide ship identifications with ranges compatible with the Harpoon missile and also significantly improve the airplane's weapon delivery accuracy for ground targets," he adds.

The upgrade program will also add two store stations to the Intruder's current array of five. The new stations are designed to hold Sidewinder or AMRAAM air-to-air missiles and will be located just outboard of the airplane's wing-fold sections. "Actually, all of the upgraded A-6E's store stations will be capable of handling the new AMRAAM missiles, but the two new wing-fold stations are designed specifically for that purpose," notes Zehner.

Premier bomber. *The new Navy contract to upgrade the A-6E will insure the continued production life of the Intruder program into the 1990's.*

More powerful engines

A new, more powerful engine for the upgraded Intruder will also be installed. The engine's manufacturer will be determined by another company competition to be conducted by the Navy. The new engine will give the A-6E considerably more power and increased thrust as well as "some better fuel specifics," says Collins.

The airplane's power plant will also be upgraded to include an auxiliary power unit (APU). The new APU will offer the Intruder self-start capability and thereby eliminate the need for so called "yellow gear" currently used to turn the airplane's engines over.

(Continued on page 6)

F-14D boasts new engine, avionics

The U.S. Navy has approved the development of a new advanced model of the Grumman F-14 Tomcat, and in so doing, has designated the F-14 as its premier fighter for the remainder of the 20th Century.

The F-14D will feature a more advanced engine, a sophisticated radar system, and all-digital avionics. These will ensure that the F-14 remains superior in the face of an ever-growing threat of enemy weapon systems.

The F-14 program began in 1969 and the Tomcat joined the fleet in 1972. Together with its unique Phoenix missile and powerful radar system, the F-14 quickly established itself as the free world's most capable fighter. Under the terms of the recently signed Navy development contract, Grumman expects to begin producing Tomcats equipped with the new engine in fiscal year 1987, and ones with the new radar and avionics packages in fiscal year 1988.

"The F-14D is a total weapons system and its performance will depend on all of these enhancements to accomplish its mission," states Pete Remington, F-14 program vice president for Grumman Aerospace. Remington also notes that in all three areas Grumman is putting heavy stress on improved reliability and maintainability.

"The objective of the F-14D development program is to make the F-14 capable of handling the growth in thread capability that has already occurred — and is expected to occur — through the year 2000. Relatively little threat-related improvement has been made to the F-14 since its initial deployment in October, 1972. Meanwhile, the threat has grown continuously," Remington adds.

One of the most newsworthy changes on tap is the new F-14D engine. The present Pratt and Whitney TF-30P414A engine will be replaced by the General Electric F110-GE-400, a derivative of the engine originally developed for the B-1 bomber.

The F-14 was originally de-

(Continued on page 7)

Formidable weapons system. *The newest version of the F-14 Tomcat will go into production at Grumman later in this decade.*

Navy gives go-ahead for F-14D, A-6E Upgrade

On Wednesday, August 1, the U.S. Navy announced plans to award a $1.14 billion contract to Grumman Aerospace for the re-development of the F-14 Tomcat and the A-6 Intruder.

The proposed F-14D contract is for "the full scale development of an upgrade of the avionics and the radar, and the re-engining of the F-14A," said the Navy. "The aircraft avionics will be upgraded from analog to digital architecture that will permit the cost effective integration of current and future navy-common avionics and weapons. The radar will be upgraded to provide improved performance and will incorporate digital processing. The upgrading of the radar and avionics will result in an aircraft designated as the F-14D."

New engine for F-14

In addition, the Navy reported that the re-engining program will consist of the acquisition, marinization and integration of the General Electric F-110 engine into the F-14A aircraft.

The A-6 contract also calls for full scale development and modernization of the avionic and radar systems. In addition, significant survivability, reliability and maintainability improvements will be incorporated in the upgraded model. An improved A-6E upgraded engine is the subject of a separate government-conducted competition currently underway.

Outstanding team effort

Commenting on the Navy's announcement, Grumman Aerospace President George Skurla said, "These improvements are long overdue and reaffirmed the Navy's commitment to keeping the Tomcat and the Intruder flying off the decks of their carriers through the 1990s. Skurla noted that it was just over a year ago that the Department of Defense plans called for gapping the A-6 and F-14 production lines for several years after 1986 . . . . The good news we now have on these programs in no small measure was due to the outstanding Aerospace team effort during the past year in convincing the Navy and the DOD there was a better and more cost-effective way to go."

Both contracts are firm, fixed-price contracts and will be incrementally funded. The initial contracts include $34 million for the F-14 and $6.4 million for the A-6E. The F-14 development work is expected to take 57 months, while development work on the A-6 is 66 months long. First delivery of both the F-14D and the A-6E Upgrade is slated for March 1990.

The Navy plans to procure approximately 300 F-14D aircraft at a maximum production rate of 30 per year in the early 1990's. Production buys of the A-6E Upgrade have not been solidified at this time, but will probably exceed 200 aircraft.

More powerful legs, eyes

The Tomcat will get new G.E. F-110 engines. The Navy will conduct a competition for an improved A-6E upgraded engine.

While the F-14D Tomcat will feature an improved version of the current AWG-9 radar system, the A-6E Upgrade radar system has yet to be determined. There are three competitors for the new radar: Norden Systems with its updated version of the current A-6E radar; Westinghouse with its A-6E version of the B-1 radar system; and Hughes. A winner is expected to be chosen shortly.

In addition, both aircraft — currently with analog systems — will be converted to digital avionics. "They will have the latest state-of-the-art avionics packages," states Pete Oram, Senior Vice President-Aircraft and Marine Programs. "It's a big systems engineering job — lots of software development."

In addition, Oram notes that the new displays will present better, more useful information to the flight crews.

Driving factors

One of the driving factors in awarding both contracts is commonality, points out Oram. "There has been a proliferation of different devices in different aircraft now in the Navy inventory. This is terribly expensive. The Secretary of the Navy was adamant that where possible we would have common equipment in the F-14 and A-6. . .along with other aircraft on the carrier decks."

One case of commonality will be the AYK-14 computer — the Navy's new onboard computer that will also be used in the E-2 and EA-6B. Other avionic equipment will also be common to both F-14D and A-6E Upgrade.

"Commonality will save the Navy an enormous amount of money in spares and training alone," states Oram. "I believe that if we do the commonality job correctly, the savings will more than pay for the development of both aircraft."

Improvements in maintainability and operability will also be made. A big factor will be the new engines. "The engines will have an electronic fuel control system. In other words, we can take it out of the can, put it on the aircraft, taxi it and fly it. Today, we have to test it, do engine runs, etc."

About 20 percent of the aircraft engines lost to FOD on the carrier deck occur on engine runs. The new powerplants for the F-14D and A-6E Upgrade will not only save engine life, but a lot of money in fuel and maintenance.

Grumman will also be looking for easier ways to maintain the new aircraft. For instance, the A-6E Upgrade will feature about the same airframe/mounted accessory drive (AMAD) system as found on the F/A-18. "This system allows you to remove the engine without taking out hydraulic pumps and generators."

As it has in the past, Grumman will also study fleet reports to determine what problems occur frequently — and see what can be done to remedy the situation.

Of course, the prime mover in the Navy's decision is to have an air superiority fighter and all-weather attack aircraft that will meet the ever-changing threat well into the Nineties.

Delivery schedule

Tomcats equipped with the new G.E. engine will be delivered to the Navy beginning in fiscal year 1987. Ones with the new radar and avionics packages will begin being shipped in fiscal year 1988. As for the upgraded Intruder, first flight is slated for May 1987. Production deliveries of the A-6E Upgrade are expected to begin in 1989.

Sweet homecoming. *A restored F-11F fighter returned — with the help of a crane — to its old home on board the U.S.S. Intrepid, New York City's latest museum. The Grumman plane was part of the squadron assigned to the carrier in 1959. It was donated to the Air and Sea Museum by Grumman after a team of retired Grummanites restored it to its former glory.*

news briefs

Four get new posts

Four Grummanites have recently been appointed to new positions.

Bill Fehrs was appointed director of A-4/TA-4 New Business on July 12. In his new post, he is responsible for coordinating all new business activities in support of Grumman International A-4/TA-4 marketing efforts. Fehrs reports to Al Verderosa, vice president of Aircraft and Marine Programs and Marty Dandridge, managing director of A-4 Programs. He can be reached on Ext. (111) 56785 in Plant 5.

In addition, Hal Pabst has been named program manager for the A-4/TA-4 Malaysian Program. He is responsible for the management of all A-4/TA-4 Malaysian activities in Grumman Aerospace. He reports to Verderosa and Dandridge and is located in Plant 5, Ext. 53883.

C^3I business update

Command, Control, Communications and Intelligence (C^3I) business opportunities are intensifying throughout the industry and the corporation. Grumman Aerospace, in alliance with Grumman Data Systems, is focusing increased attention to those C^3I opportunities. Toward this end, the following appointments were effective as of July 12.

Tony Italiano, in addition to his present assignment as director of Program Management Business Development Activities, will direct all C^3I activities and new business initiatives for Grumman Aerospace. He will be the primary C^3I spokesman in dealing with other Grumman subsidiaries. In this capacity, Italiano is assigned to Tom Kane, vice president-Business Development, and report to Pete Oram, senior vice president of Aircraft and Marine Programs. He can be reached on Ext. (111) 52309, in Plant 25.

Ed Schoenfield, in addition to his responsibilities for all joint Grumman Aerospace/Grumman Data Systems new business activities for the Marketing and Advanced Technology Department, will direct all Advanced Systems Technology activities in C^3I. He is assigned to Italiano and reports to Mike Ciminera, director of Advanced Systems Technology. Schoenfield is located in Plant 5, Ext. (111) 54913.

Pt. Mugu honored

Grumman Aerospace's Pt. Mugu, CA., was recently honored at the NAACP Banquet in Ventura County. The event commemorated the 75th anniversary of the NAACP with tributes to its founder, Roy Wilkins.

Pt. Mugu was honored in 1979 as the first recipient of the NAACP local community EEO, Affirmative Action Award of Merit. This year, Grumman was cited for its continuing efforts in community affirmative action.

Receiving the citation on behalf of Grumman Pt. Mugu were John Torkelsen, Personnel manager; William McClain, Manufacturing supervisor, and James Henry, Manufacturing group leader.

GTSI moves

Grumman Technical Services, Inc., recently relocated. Its new corporate facility is at 5195 South Washington Avenue, Titusville, Fla. 32780. Telephone number is: (305) 268-8400; telecopier number is: (305) 268-8357.

Reunions

Sewanhaka High School '44. A class reunion is being planned for 1944 graduates of Sewanhaka H.S. in Floral Park (NY). Plans are for a dinner dance at Nassau Inn in Floral Park on Saturday, November 10, 1984. Interested? Write to Sewanhaka H.S. Reunion Committee, P.O. Box 1, Floral Park, NY 11002.

U.S.S. Coral Sea. At Norfolk (VA), a tour of Coral Sea aircraft carrier is planned (October 5-7) for those attending the 6th annual reunion of the Coral Sea Association . . . composed of enlisted men and officers who have served aboard this ship since its commission in 1947. For more info, write to Sal Avellino, 45-11 Arcadia Lane, Great Neck, NY 11020 or call Bill Hons at Great River, Pl. 44, Ext. 6410.

Post bond interest rate

The market-based interest rate for U.S. Savings Bonds — Series EE — issued between May 1 and October 31 of 1984 is 9.95 percent for their first semiannual interest period.

Older Series EE and E bonds and U.S. Savings Notes will also receive this market-based rate for six-month interest periods which start between May 1 and October 31.

The average yield for bonds held since the beginning of the market-based interest program is 9.77 percent. The minimum guaranteed yield on bonds held five years or longer is 7.5 percent.

Pt. Mugu honored. *Charles Brown, director of Pt. Mugu Operations, accepted a certificate of appreciation from the National Committee for Employer Support of the Guard and Reserve on June 14. The award was presented by Capt. James Hickerson, commanding officer of Naval Air Reserve, Pt. Mugu, Calif. Grumman was commended for its support of Guard and Reserve activities and its contribution to the national defense.*

ODD picnic. *The annual Opportunity Development Department gathering at McKay Field brought many old friends together recently. It was an opportune time to make new ones, too.*

NASA chooses power tower concept for space station

The National Aeronautics and Space Administration (NASA) announced at a recent industry briefing that it has chosen the "power tower" space station concept as its reference configuration for future research and development.

The power tower is derived from a Grumman-developed concept bearing the same name. The term "reference configuration" means only that this concept will serve as a general guide. NASA has not yet decided what systems or technologies will be utilized by the space station. That decision will be based on the outcome of several systems definition contracts, which will be awarded to the successful bidders early next year.

Vertical structure

The power tower gets its name from the fact that all of its modules — habitat, control, laboratory, service, et cetera — would be suspended in orbit on a vertical structure resembling a radio transmission tower. The top of this structure would also be equipped with solar energy panels, enabling the space station to generate as much as 120 kilowatts.

One of the plusses of the power tower is that it could be expanded significantly. NASA could start out with a small station, and add modules and solar panels in the future when they are needed. Such expansion could also be done asymetrically without affecting the space station's attitude in orbit.

Grumman originally submitted its power tower concept to NASA in April of 1983, and the original design has been changed somewhat by both Grumman and NASA since that time. Four other concepts were evaluated according to cost, number of launches to assemble the station and make it operational, maintainability, growth capabilities, and how well each station lent itself to NASA's scientific and technological research requirements.

The other four included the "planar" concept, which would orbit the Earth on a roughly horizontal attitude; the triangular "delta"; the Big "T"; and the "Spinner", shaped like a large communications antenna. The power tower concept finally put forward by NASA borrows slightly from the planar concept in the way its solar panels are configured. Otherwise it is remarkably similar in appearance to the original Grumman idea.

More work ahead

Ron McCaffrey, manager, Space Station Systems Studies for Grumman Aerospace, is cautious when asked if this latest NASA announcement puts Grumman in a good position for future contracts.

"A lot more work needs to be done," he says. "There are no prizes, in terms of future contracts, to be received from developing the reference configuration." He estimates that the space station, and the two unmanned free-flying platforms that will accompany it, will represent an expenditure of about $8-billion.

The industry briefing was held in mid-July and attracted about 400 industry and NASA representatives. NASA plans to hold another briefing in late August to preview the request for proposals (RFP) it will release this September for the first space station systems definition study. Industry will have two weeks to provide input to the final version of the RFP, which is scheduled to be released in mid-September. Proposals will be due 60 days later, in mid-November.

McCaffrey notes that NASA is expected to follow with a request for best and final offers (BAFOs) to be due shortly after the New Year. At least eight contracts would be awarded by April of 1985, to begin parallel studies in four major areas of the space station program.

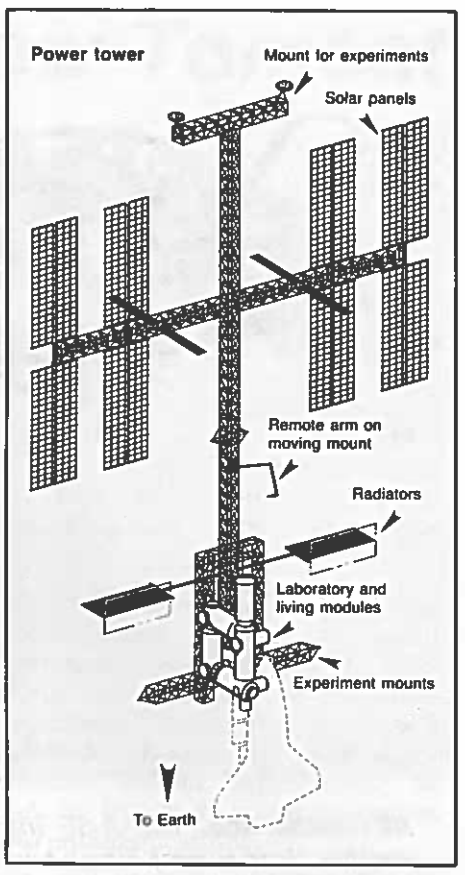
"The contracts for these 20-month systems definition studies would each be worth anywhere from $15- to $30-million," says McCaffrey.

Both systems definition and hardware efforts will be managed by four NASA centers, and the contracts themselves will be divided so that each work package will fall under the purview of one center.

Johnson Space Center in Houston will manage the development of the station's structural framework and systems installation. Docking systems, the remote manipulator arm, data management systems, attitude controls, and thermal controls would also be Johnson's responsibility.

Marshal Space Flight Center in Huntsville, Alabama, would be in charge of defining the needs for the pressurized space station modules, as well as their power, communications, thermal, and environmental systems. It would also direct the design of the orbital vehicle that will travel between the Space Station and other spacecraft.

Goddard Space Flight Center in Greenbelt, Maryland, will make provisions for instruments and payloads on the station, and set requirements for laboratory modules and unmanned platforms. Lewis Research Center in Cleveland will take charge of the development of the station's electrical power generation facilities.



Outpost in space. *The power tower space station concept gets its name from the fact that its control, lab, habitat, and other modules would be suspended in orbit on a structure resembling a radio transmission tower. The top of the structure would be equipped with solar panels, enabling the space station to generate as much as 120 kilowatts. One of the power tower's benefits is that it could be expanded significantly.*

Ribbon-cutting ceremony. *Renso Caporali, senior vice president-Technical Operations, and Will Bischoff (R), vice president and chief engineer, System and Vehicle, do the honors at the recent opening of the Plant 14 addition. The expansion of the Plant 14 Engineering Development Center will house E-2C development work as well as electronic systems work now going on in Plant 14. Ground was broken on July 20, 1983 for the $10-million structure.*

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Editor
Kathleen Housley Ext. 53293

Associate Editors
Joe Pititto Ext. 55119
Robert Sample Ext. 55118

Editorial Assistant
Bernadette Gately Ext. 58999
Mail stop: C14-05

All weather ace. *The A-6E Intruder, the U.S. Navy's primary all-weather air-to-surface attack bomber, will get new radar, avionics and engines as part of a recently won Navy contract. Eventually, the A-6 upgrade contract will be worth about $397.8 million over a period of several years.*

Intruder to get high-tech facelift

(Continued from page 2)

"The self start capability will considerably reduce the amount of equipment needed around the airplane on the carrier deck," points out Collins. "It will enable the plane to start its own air-conditioning and electrical systems, solving a significant logistical problem on the top of the carrier deck," he adds.

A totally modernized cockpit with all new avionics will also be installed in the upgraded A-6E. The new cockpit will have a "heads-up" display replacing the optical sight in current A-6E cockpits. The display will be produced on a clear sheet of glass directly in front of the airplane's pilot, providing the ability to read flight data while operating under visual flight rules.

Built-in commonality

The modernized cockpit will have no less than five multifunction displays which are common to the A-6E, the F-14D and the F/A-18. In fact, commonality is an important feature of the A-6E upgrade program.

"What we are trying to accomplish is the standardizing of as many features — displays, computers, data busses, supporting avionics, et cetera — as is possible, in order to effect a high degree of commonality with other Navy aircraft systems without trading off any performance," says Zehner.

Part of this thrust for commonality will also include the replacing of about 125 "black boxes" on the A-6E so that at least 110 of them will be common to the F-14D, and/or the F/A-18. "Such standardization will have a very big impact on how many spares are needed on carriers. It will help improve the whole support posture of the Navy's aircraft systems," he adds.

Going digital

Another feature of the commonality theme is the addition of two of the Navy's standard AYK-14 onboard digital computers. Aiding the high speed/high capacity computers will be a new "1553" digital interface, replacing the current analog conversion interface. The new digital interface will increase the speed and accuracy of communications between the airplane's black boxes and — with the addition of a new digital autopilot — makes the aircraft completely digital.

Collins says that the Navy estimates an overall 30 percent reduction in direct maintenance time based on flight hours for the updated A-6E as a result of the program's emphasis on improved reliability and maintainability. "One of the driving forces behind the Navy's decision to go with the upgraded A-6E, is its desire to reduce the overall operating costs of the system," Collins notes.

Reduced maintenance

Maintenance manhours required to keep the A-6E fully operational in the field will be significantly reduced as a part of the upgrading program. In addition, accessibility to the aircraft's new radar and engine will be improved to reduce repair time requirements.

The new Intruder will also include more corrosion resistant materials in its construction, such as new fasteners and sealed ball-bearings that do not require frequent lubrication.

Navy studies have indicated that the Upgraded A-6E shows a threefold improvement in survivability and reduced vulnerability. "Improvements in the radar, engines, fuel systems, and the addition of air-to-air capability will work hand-in-hand with improved reliability and maintainability to extend the life of the Intruder. At the same time, those same improvements will enhance the overall performance of the aircraft," says Collins.

An interim step

In addition to the specific improvements of the upgrade program, Collins says that the new Intruder will incorporate all the current A-6E update work going on, including satellite navigation capability and other advanced features currently being developed.

"The whole idea of the upgrade program is to produce an aircraft system for the Navy that will be an interim step between the current A-6E airplane and the next generation air-to-surface mission aircraft— the Advanced Tactical Aircraft (ATA), now on the drawing boards," points out Collins.

"Basically, at this time it is economically and technically better for the Navy to upgrade the existing product rather than moving on to the more expensive and still unproved alternative in the next generation ATA," he adds.

"In fact," says Collins, "going with the upgraded A-6E is the best path currently available to the Navy to replace airframes that are reaching the end of their service life and at the same time meeting new capability requirements for a specific number of new airplanes."

Indeed, the Navy's confidence in the abilities of the Intruder have prompted it to consider increasing the A-6E squadron number deployed from one to two, on at least two of its largest aircraft carriers, as is already the case on the *U.S.S. John F. Kennedy*.

Details of the A-6E upgrade program contract call for the modification of five aircraft. "We will be taking five A-6E airplanes from the fiscal 1984-85 contracts and incorporate the upgrade program changes during their production in order to demonstrate the aircraft's new capabilities," says Collins.

First flight of the upgraded A-6E is scheduled for May 1987. Flight testing of the new Intruder will include what is known as "participative" Navy involvement, with a Navy group to be stationed at Grumman's Calverton Operations. Production deliveries of the upgraded aircraft configuration are scheduled to begin in 1989. Current A-6E TRAM Intruder production is expected to continue through 1988.

Grumman to develop powerful new Tomcat

(Continued from page 2)
signed for a more advanced engine than it now has. However, development of this new engine was halted in 1974. In 1981, a prototype GE engine was installed in an F-14, flight tested at Calverton by both the Navy and Grumman, and received rave reviews.

The new engine will not change the aircraft's flight envelope. "The flight envelope of the F-14 is excellent," Remington states. "What we will accomplish is a greater acceleration, improved operability and maneuverability, thereby taking full advantage of the F-14's capabilities."

The GE engine is rated at approximately 28,000 pounds of thrust, in maximum power, compared to the present engine's 20,500. In addition, the new engine will save fuel. The fuel savings would vary according to flight speed and other factors, but would be appreciative over the gamut of missions. As an example, the new F-14D won't need afterburners for carrier takeoffs — which spells a much lower fuel consumption.

Radar enhancements

The F-14's radar is also to be upgraded. According to Remington, "the current radar in the F-14 is probably the most powerful airborne fire control radar in the world today, providing the greatest detection and tracking ranges. However, the problem is not in range, but in the ability of the enemy to destroy the radar's effectiveness — through jamming or electronic countermeasures."

To provide increased effectiveness, the F-14D's new radar system — developed by Hughes Aircraft — will employ a low sidelobe array antenna, a monopulse receiver, frequency agility, and other improvements. All of these enhancements will greatly aid the radar system in defeating the enemy.

Going digital

Just as the F-14D radar will have impressive data gathering capabilities, state-of-the-art digital computers will store and process the information more rapidly. Crews will be able to match radar target data with that gathered by non-radar sensors — including the existing TV camera, a new Infrared Search and Track Set and the new Joint Tactical Information Distribution System (JTIDS). JTIDS, a secure communications system, will also provide a fighter-to-fighter data link, making cooperative targeting possible.

All of the F-14D's avionics will be digital components — a must in order for newly developed weapons subsystems to be integrated, among them JTIDS, a new radar warning receiver, advanced self-protection jammer, and the new advanced medium range air-to-air missile (AMRAAM).

This is in keeping with present electronics trends. Any component that is developed today utilizes digital technology.

Equally important, the all-digital avionics system will be easier to maintain and upgrade. An upgrade could be accomplished by changing the system's software, whereas in a hybrid analog/digital avionics configuration like that of the present F-14, upgrading would mean extensive rewiring and rearrangement of components. Crew maintenance will be aided by easy-to-understand computer displays.

In addition, the design philosophy was to utilize as much existing equipment as possible, thereby holding down costs. The onboard computers will be standard Navy AYK-14s. F/A-18 components can be found in the pilot and weapon systems officer displays and controls, the stores management system, and digital navigation systems. Furthermore, much of the F-14D hardware and software will be common to the upgraded A-6E.

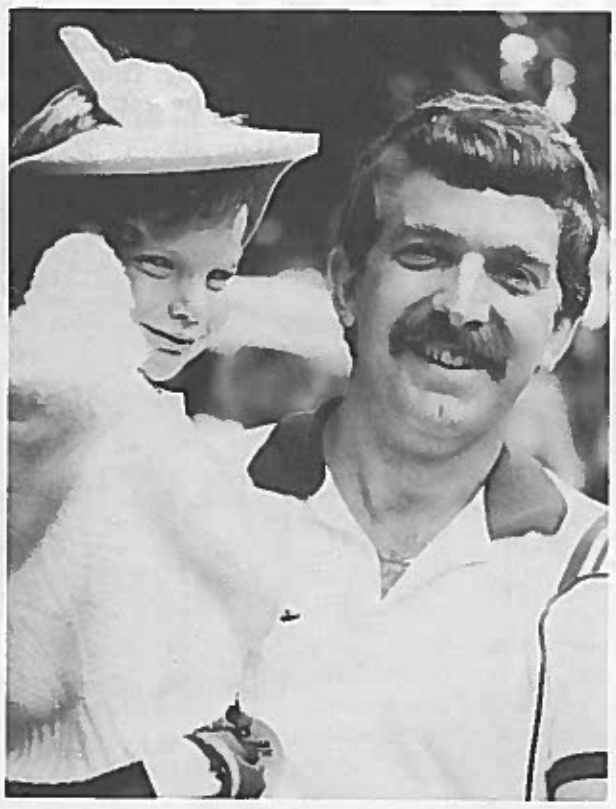
The Plant 14 development laboratory has gotten a headstart at integrating these off-the-shelf items into the F-14. One of the F-14D's unique components will be the pilot's heads-up display, or HUD for short. The HUD, a standard item on today's military planes, is a system that projects data either onto the windscreen or onto a glass surface directly in the pilot's line of sight. The present F-14's HUD uses the former setup, while the new F-14D will utilize the latter. The pilot can monitor the aircraft's performance, as well as weapon system and target information, without taking his eyes away from the windscreen, hence the term "heads up." The HUD and all of the new display screens on the F-14D will be digitally programmable.

The engine, radar, and avionics upgrades are of equal importance. Since the enemy threat has increased in terms of numbers, speed, and air-to-surface-missile release range more F-14s must get to the outer air battle zone faster. The F-14D engine will provide this capability as well as stall-free operation throughout its entire performance envelope.

At the same time, the radar upgrade will provide successful operation in a heavy enemy electronic countermeasures environment. And the new avionics will make for better management of weapon system information, as well as improved countermeasures and communications.

In all three areas. the F-14D will provide improved durability — reliability and maintainability as well as operational readiness and low operating costs. It all adds up to a formidable airborne weapon system for tomorrow's Navy.

Best defense. *The new F-14D Tomcat will feature a more powerful engine, more effective radar, and state-of-the-art digital avionics. It will also offer improved durability and maintainability.*



'We were coming

The rain alternated between a light drizzle and a rushing downpour all day Saturday, July 21. But that didn't stop about 8,000 Grummanites and their families from trekking out to Calverton for the 43rd annual Grumman Family Picnic.

The day began with the traditional flag-raising ceremony at 10 a.m., officiated by Grumman Corporation President Joe Gavin and Grumman Data Systems President John O'Brien.

For the first time, this year the picnic was open to all Grummanites from every subsidiary, as well as Aerospace. Wrote Grumman Corporation Chairman Jack Bierwirth in the 1984 Picnic program: "In the late 1960s we diversified our business interests to encourage corporate growth. In the process, however, the Grumman family picnic — a tradition that helps bind us together — became diversified as well. As a result, for the past 15 years each Grumman company on Long Island has had its own picnic.

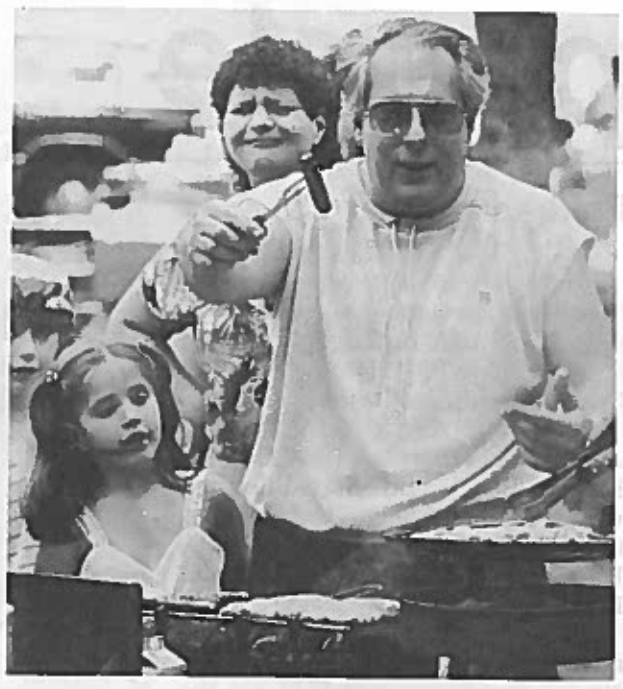
"This year, we once again welcome all Grummanites to our annual family outing. Let's all celebrate together as a reminder of our oneness as a company, the teamwork that has brought us this far, and the teamwork that will be necessary to carry us even further in the future," said Bierwirth.

At high noon, Bierwirth addressed the crowd. "I was told we'd have the picnic come hell or high water," he remarked. "Let's see if we can pull that sunshine out by the end of the day."

If there was a positive side to the stormy weather, it was that there weren't any lines at the refreshment stands. So, there were plenty of free hot dogs, soda, and beer to go around.

The wetness of the playing field didn't stop a lot of kids of all ages from participating in a variety of sports events — including running races for boys and girls, potato sack races, the popular three-legged race, and wheelbarrow races. Richard and Katherine Hepp brought their two young sons and the family enjoyed itself despite the rain.

"We were coming, rain or shine," Katherine



, rain or shine'

said. "The first year we came, it rained all day, and we sat under the trees in our raincoats — we still had a good time."

Six-year-old Monica Barth was soaked, but happy, when she came in second in one of the girls' races. Her parents, Anita and Cliff Barth also didn't seem too troubled by the day's bad weather.

"You think we're going to leave? This is great . . . The people we came with brought a van, so we stayed there until the rain let up," Anita said. "These family picnics are wonderful. It's too bad it's just once a year . . . My daughter noticed they have rollerskating this year, so next year, she'll bring her skates."

Indeed, the people at the picnic had some clever ways of staying dry. Larry Comodo and Bill Mytko strung a boat cover between a corner of the bandstand and two adjacent trees. That provided the crowd of about 20 people with enough shelter from the storm.

"We'd like it to clear up, of course." said Rae Neeman. "As long as it stays like this (drizzle), I'll stay . . . if we have another downpour, I might have to leave."

Gertrude Howard, said quite a few family and friends had been invited to the picnic, but she expected a small turnout due to the rain. "This is a one-time-a-year thing, and we really look forward to it," she said. "This is the first year it's been this way. Only about 10 of us came."

In many cases, the kids were the ones having the good time. "If it wasn't for the kids, I'd have packed it in long ago," said Joe Horvath.

Members of the Grumman Klown Klub strolled among the crowd throughout the day and attempted to lift rain-dampened spirits.

Much of the afternoon's entertainment was rained out, and the annual prize drawing was postponed until the following week. The top prize winner was Vicki Gorglione, an engineer on Communications, Navigation, and IFF for the E-2 program in Plant 25. Her prize was a $600 gift certificate from an appliance store.

Picnic photos by Karl Thoma (pictured above), Fred Annette, Jim Prestiñari and Larry van Wallendael.

people

Four honored at Cape

Four employees of Grumman Technical Services, Inc., were honored by NASA during the delayed launch of STS-41D at Kennedy Space Center, Florida, recently.

Through NASA's Manned Flight Awareness Program, George Best, Dennis Pogar and Steve Gersten were nominated as launch honorees, the highest award NASA presents. Bill Ebert was honored as a Center Director's Launch Viewing Guest.

A special reception with the astronaut crew of 41D and other NASA dignitaries was held for the launch honorees, as well as a VIP tour of the Space Center, and presentation of STS-41D souvenirs. When STS-41D does take off, the four will view the launch from the VIP site.

Selection as a launch honoree and Center Director's guest is based on an individual's significant accomplishments and contributions to the Space Program. Only a few slots are allocated at random launches for these awards.

George Best is the lead test controller for the Control Room 3 and Four Sets in the Launch Control Center. His responsibilities include insuring Launch Processing System (LPS) readiness for supporting all Shuttle Testing Activities from the Control Room 3 environment. George has been involved in Shuttle Processing activities at KSC for seven years.

George Best

Steven Gersten

A KSC intermediate level maintenance facility (ILMF) staff engineer, Steve Gersten is responsible for technical support of the ILMF and is project leader for the development, documentation, fabrication and testing of the Vandenberg Air Force Base ILMF. Steve has worked at KSC since January of 1980.

Dennis Pogar is presently a Senior Logistics Analyst assigned to Item Management responsibilities for Modular Computer Corporation (MODCOMP). He is also responsible for the ILMF facility which includes establishment of the Vandenberg ILMF. Dennis has been at KSC since 1974.

As test conductor for the Measurements Department, Bill Ebert is responsible for test coordination, departmental inputs to integrated procedures, readiness review representative and real-time test support during vehicle flow. Bill has been a KSC employee since 1965, and has been involved in the Apollo, Skylab and Shuttle programs.

Bill Ebert

Diving for treasures

Many scuba divers prefer the warmer waters of, say, the Caribbean to those of the Northeast, saying local waters are much too murky for their tastes. John Lachenmeyer, a computer architect in Grumman Aeropspace's Engineering Department and a longtime scuba enthusiast, has the opposite preference. He's made a passion out of exploring shipwrecks off the Eastern Seaboard, of which there are hundreds.

John's been diving wrecks for about 15 years now, and he's got a house full of interesting objects as testimony to his unique hobby. Among them are brass portholes, a curio cabinet full of china from the *Andrea Doria*, and a 100-year-old toilet from the *Oregon* that John converted into a planter.

Most recently, in May, John dove to the wreck of the *USS San Diego*, which was sunk off Fire Island in 1918 while en route from Portsmouth, New Hampshire, to New York Harbor. The *San Diego* was a 503-foot-long, 15,000-ton warship originally commissioned into service in 1904 as the *USS California*.

While diving the wreck, John found a trophy dated July 4, 1911. The trophy was presented to the ship's crew by the city of Vallejo, California, for winning both the 12 and six-oar cutter races in a July 4 celebration.

John dives about three times per week, usually going it alone. He sometimes crews on diving boats to save money; he's also licensed as a dive boat captain. He usually dives locally, but he does plan to go to Bermuda in October with a group to explore wrecks in that part of the Atlantic.

He passes up trips to Florida and the Caribbean, though, saying there aren't as many wrecks to explore in those places and "one piece of coral looks just like any other."

Asked how he gets artifacts from a wreck up to the dive boat John replies: "I use airbags to lift stuff off the wrecks, since it can be very heavy.

"While I'm on a dive, I can't think about home or work, since I have to pay so much attention to diving," John says. "Diving is total absorption."

Professionally speaking

Tom Ivory, manager of Industrial Engineering, has been elected a director-elect of the Institute of Industrial Engineers' Aerospace Division for the 1984-85 term. A senior member of IIE, Tom assumed his new post at the IIE recent conference; he will become a director in 1985.

Treasure hunter. *Grummanite John Lachenmeyer shows off the treasures he's gotten from Eastern Seaboard wrecks.*

Third Shuttle Trainer taking form in Plant 5

In the west section of Plant 5, work is progressing steadily on the third Grumman-rebuilt Shuttle Trainer Aircraft (STA).

Grumman is converting a Gulfstream II corporate jet into the STA for the National Aeronautics and Space Administration (NASA) under a contract awarded in late '83. The aircraft is slated for delivery to NASA in February of 1985.

Modified by Grumman during the 1970s, the two current STAs are used by Shuttle flight crews to practice approach and landing maneuvers.

Changing the structure

The STA is currently in the structural modification stage, with the work being performed by the Product Development Operations Center (PDOC) crew in Plant 5. Actually, most of the modifications will be electrical rather than structural, especially since the new STA will not be equipped with side-force control surfaces. These have been used on the current two STAs to simulate the Shuttle's sideward motion, and are to be removed from those aircraft.

"NASA decided it didn't need them," states Bill Gentzlinger, program manager of the STA Program. "They saw a potential safety hazard in the event the STA ever had to perform a 'wheels up' landing. The safety concerns outweighed the need for fidelity in simulation."

The major structural changes that are being done include the replacement of the Gulfstream II's production-type flap system with a direct lift control system, and the replacement of its target-type thrust reversers with Cascade thrust reversers. The latter are operable in flight. Both modifications enable the STA to simulate the Space Shuttle's lift to drag (L/D) ratio.

During the later stages, the flight controls and cockpit instrumentation will be modified to accept the inputs of onboard computers and other equipment that provide realistic Shuttle flight characteristics.

While the other two STAs were rebuilt from brand-new Gulfstream II jets, the Gulfstream now being rebuilt has logged 6,000 flying hours.

Another difference will be in the wiring configuration inside the third STA. This is partly due to changes NASA made to the two existing STAs during the eight years it has operated them. The changes had to be incorporated into the third STA's design.

"Work has been done to keep the systems basically the same in terms of the functions they perform, but routing of wires in the aircraft will be different than in the other two," Gentzlinger says. He adds that Grumman will not install the plane's on-board computers before flight test and delivery to NASA. NASA will install them itself at Johnson Space Center in Houston.

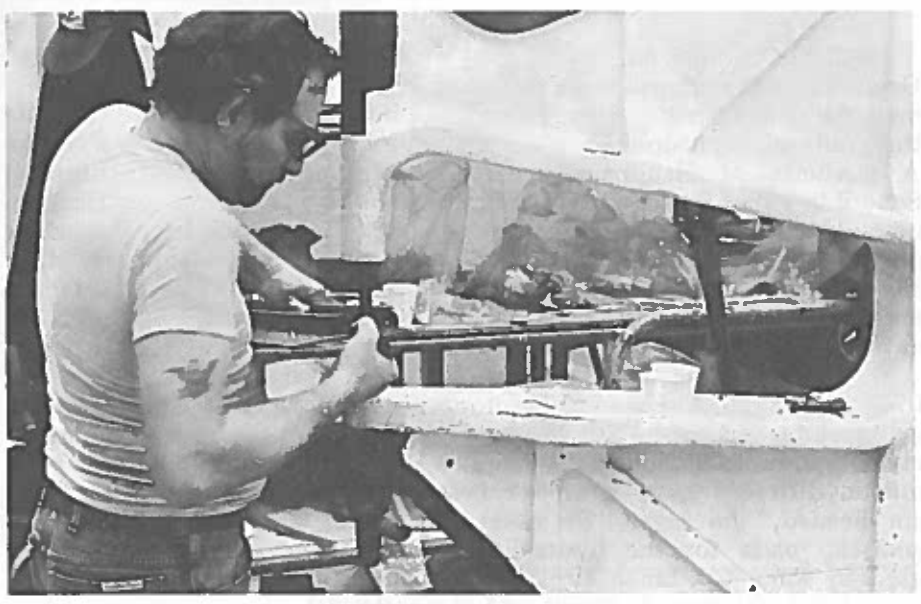
The aircraft is scheduled for completion in November. Following that it will undergo functional tests, finally taking three test flights. There won't be a lot of fancy maneuvers, though, due to the absence of the on-board computers.

Gentzlinger also sees some likelihood that the program will continue beyond STA number three.

"There's some potential for a fourth STA," he says. "NASA has the need for one."

Attention to detail. *George Fowler sands a detail part that forms part of the STA's flaps. The STA has a direct lift control system and Cascade thrust reversers, enabling it to simulate the Space Shuttle's lift-to-drag characteristics.*

Metamorphosis. *In Plant 5 (top of page) work is well underway on the conversion of a Gulfstream II corporate jet into a Shuttle Trainer Aircraft (STA). The STA is used by Space Shuttle crews to practice approach and landing maneuvers, and this is the third aircraft of its kind Grumman has produced. Al Coffee (above) is shown producing the new engine thrust reversers, while Frank Gravina (left) works on the engine pylons. Al Bozek (below) utilizes a squeeze riveter in producing a small STA subassembly. When structural changes are complete, electrical modifications will be made prior to delivery to NASA.*



'Working at Grumman this summer is great . . . and the money I earn doesn't hurt either.'

Have you noticed some new faces around your work area lately? Seems there are a lot of young people working for the company these days. And, indeed, there are. Those young faces belong to college students, home for the summer, and working here at Grumman.

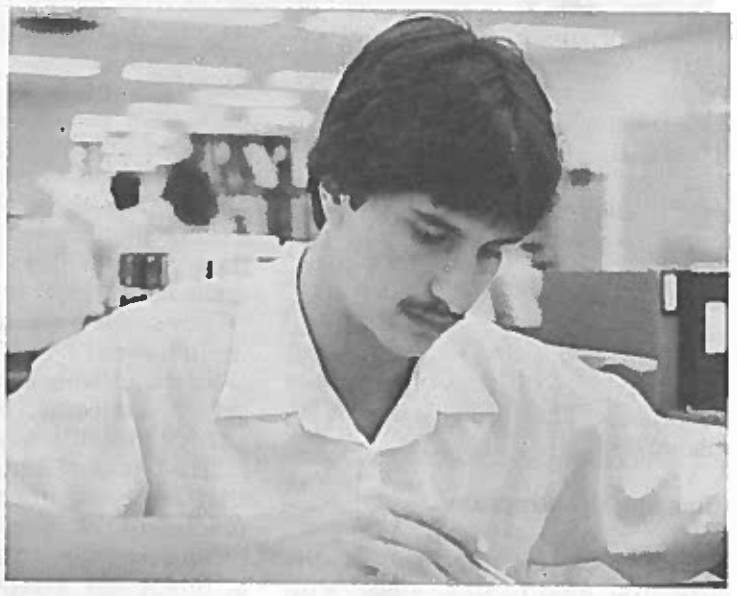
The new employees are the sons and daughters of Grummanites who have been with the company 25 years or longer. Charlie Pfaeffle, Employment Manager, explains that 2,500 young people applied for summer employment, and 700 of them were hired. The selection process is based primarily on the number of years the student's parent has been with the company, says Pfaeffle. This year the cutoff number was 25 years, although a special maintenance and cafeteria program was available for those students whose parents had 20 years. That area had been understaffed.

"Students have literally been placed all over the company," says Pfaeffle. Whenever possible, students are placed in areas related to their major. Sometimes, however no such position is available. Then, the best possible placement is made.

"Whenever we work out a good placement, it is to the company's and the student's advantage," notes Pfaeffle.

Among the 700 students hired this summer, approximately 60 are Grumman Scholars. All Grumman Scholarship winners, most of whom are engineering majors, are offered summer positions. These students may choose to work beginning with the summer after high school graduation and up through graduate school.

Shop scholar. *David Cunningham worked his first summer in the Plant 2 Hydraulics Shop.*



Computer conversations. *Michael Kiernan has learned two new computer languages this summer.*

Scholars at work

David Cunningham, a 1984 Grumman Scholar, will be a freshman electrical engineering major this fall at Princeton University. A graduate of Hauppauge High School in June, David started work immediately in Plant 2 the day after graduation. "I was looking forward to working at Grumman and I wanted to get started as soon as possible," he says.

David is working in department 070, Hydraulic Tube Installation and Welding, where he does a variety of shop assignments. "I help out in different areas whenever I am needed," he says. "We clean and cap parts for the hydraulics used in some Grumman airplanes. It's a great department, the people are really nice to work with and the atmosphere is pleasant."

Last summer David worked as an intern at Brookhaven National Laboratory. "I worked with a scientist in the Medical Research department at Brookhaven. It was very interesting and I wanted to see what it was like," he explains. "This year though, I was looking forward to working at Grumman where I hope to get some hands-on experience in preparation for my career as an electrical engineer." David says he would like to return to Grumman after graduating from Princeton.

"Working at Grumman this summer is great as far as the experience goes, and the money I earn doesn't hurt either." David plans to use some of his summer earnings for college expenses and hopes to put some away for savings. He notes that his $4,500 Grumman Scholarship is contributed to Princeton's $14,000-a-year tuition.

Michael Kiernan is an alternate Grumman Scholar, who is a sophomore at Massachusett's Institute of Technology studying electrical engineering. Michael began working at Grumman last summer, after his high school graduation, in Plant 2. There he worked on parts assembly. This summer he is working in Engineering Computer Systems, where the work is closely related to his major. "I've been learning a lot here," said Michael. He is presently being taught two graphic languages, DISSPLA and TELAGRAF, by co-workers. "I use these languages to make graphs that show how much our department uses the time share system."

Michael says he enjoys his summer job at Grumman. "If I weren't at Grumman I would probably be teaching little kids how to play tennis at summer camp. . . .for next to nothing." What money he earns is used for college tuition.

Good experience

Donna Vazquez, a junior economics major from Skidmore College, is pleased with her position as a CRT operator in Requirements Planning. "I like it a lot, because I'm learning how to use a computer," she says. Donna's work deals with the input of information about the EA-6B and the A-6E into the computer system.

Donna hopes to work one day in a large corporation, perhaps in Latin America, because her interests lie in the geology and culture of that region. She feels that her work here at Grumman will help her. "It's a good experience to work for a large corporation, like Grumman. You get a taste of the real business world. If I weren't working at Grumman, I'd probably be waitressing". As for the money she earns this summer, Donna intends to use it for her spring semester while studying abroad in Spain.

Kelly Ferguson hopes to continue working for Grumman after graduation. Kelly is a business management major from Molloy College, currently working in the Corporate Quality and Safety Business Office. This is her third summer at Grumman. In the previous summers she was a secretary in Plant 12. Kelly says she is very pleased with her job placement this summer. "I was surprised how related the work was to my major. They gave me quite a bit of responsibility. I'm not stuck with only one thing to do — my job responsibilities change — and as the weeks progress, I learn more and more."

Kelly feels that her work this summer gave her some insight to what she really wants for a career.

Business sense. *Donna Vazquez is getting a 'taste of the real business world' working at Grumman.*

"I definitely want to work here at Grumman. The people are friendly and accommodating; they have helped me to see what I really want to do."

Seth Kerekes, an international business major from James Madison University in Virginia, says he knows exactly what he wants from his business career — travel. He hopes to fulfill his wish by working for Grumman International. Currently, graduation is still two years away for Seth and he is happy to be working for the Grumman Employee Service Office in Calverton.

"When I first came to work here this summer," Seth said, "I thought I would just be behind the counter — that it was only a store. But we do many other things. Once I even went into town to pickup Ben Gay for some guy with a backache! It's a fun job." Seth also said that as a member of the Employee Service department, he gets to work the Grumman Family Picnic July 21. "I don't mind, as a matter of fact it ought to be a lot of fun. I'll be there from 6 a.m. to 6 p.m."

Seth, like many other college students throughout Grumman, enjoys his job. In a recent survey of 80 summer employees, 95% of them like what they are doing, and just about all of them added this comment: "I like the people I work with; everyone is so nice."

Thirty-three percent of those surveyed are new to Grumman this summer. Last year many of these students worked in Burger Kings, delis, clothing stores, etcetera, and they are happy to have found employment here at Grumman. It's a secure well-paying summer job for many.

The summer employment program allows the students to work eight to 10 weeks from his or her starting date. So, by mid-August most of them will be packing it in, and focusing their thoughts on the upcoming fall semester.

●

This article was written by Donna Walter, daughter of Arthur Walter who works in Plant 3 Machine Shop. After completing her summer job at Plane News, *Donna will return to SUNY-Plattsburgh for her senior year. She is majoring in mass media. The* Plane News *staff wishes Donna success in her television career.*

Fun at work. *Kelly Ferguson (top), and Seth Kerekes (bottom left), both say they enjoy their Grumman summer positions.*

Close look. *Students toured the F-14 Avionics Development Lab during a recent seminar.*

A high-tech summer

Eighty-two engineering and computer science students turned out for the first technical seminar of the summer last month. Over 690 summer employees are expected to participate in the program this summer.

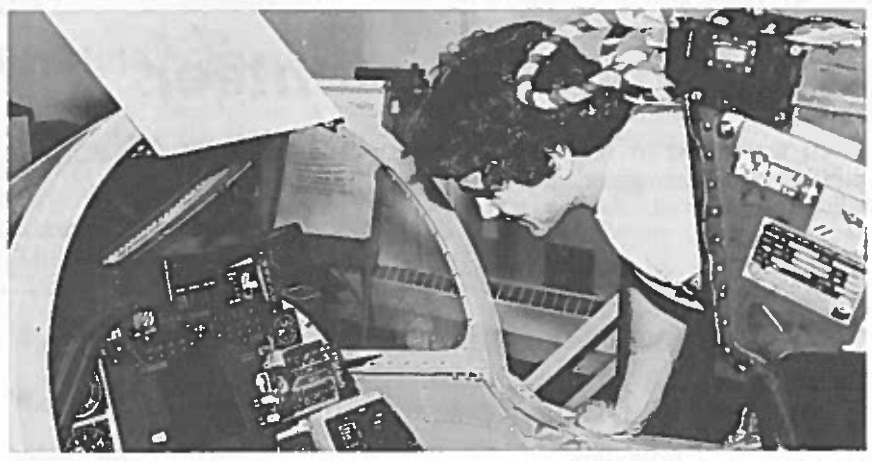
The first seminar, Lab Management and Simulation, took place in Plant 14. Manager of Laboratory Operations and Engineering Development Center, Ralph Palomba, was one of three tour guides that lectured and gave students a close look at the laboratory facilities in Plant 14.

Students visited the F-14 Avionics Development Laboratory, the E-2C Laboratory, the Flight Control System, the Space Simulator, and the Radio Frequency Chamber.

"I really enjoyed the seminar," said Donna Budney, a computer science major from New York Technical Institute. "I got a better idea of what really goes on here at Grumman. The tour was well prepared and organized. I learned a lot from it. I must say that the technology involved in the labs really impressed me."

The following seminars were also successful. Paul Faber, a mechanical engineering major from Cornell University, and a Grumman scholar, feels that the seminars have been very effective. He said. "This is the fourth summer I've been working here at Grumman, and each year I go to these seminars. I have found that as my education becomes more sophisticated, I learn more and more from these seminars. They are very interesting and helpful."

Because of the technical nature of the seminars, and the limited number of students alloted per lecture, they were only offered to students majoring in the technical/science fields. Janet McLoughlin, coordinator of the program, said, "The most common majors in attendance were: computer science — number one, electrical engineering, mechanical engineering, and aerospace engineering." She also noted that, "Based on attendance and general comments so far, the seminars have been very successful. Students have been asked to fill out an evaluation sheet, so that the program can be changed or improved for the students next year."



Up close. *During the high tech seminar tours, students get a bird's eye view of simulators.*

Vols needed for attack on illiteracy

Hart Wagner is a retired engineer who worked on a variety of Grumman programs during his career. Now, he works two nights a week as a reading tutor.

Literacy is something most people take for granted, but they really shouldn't. As many as one in five adult Americans are functionally illiterate, according to national education surveys. That translates into an inability to read, write, and compute well enough to meet the requirements of daily life in 1984. It also spells trouble for society, since the functionally illiterate are underqualified in the job market and form the ranks of the under- and unemployed. This, in turn, increases crime and welfare expenditures.

A call for help

Last September, U.S. Secretary of Education Terrell Bell called upon American business to help tackle the problem of illiteracy. A corps of volunteer business people would work through literacy organizations nationwide.

In response to Bell's appeal, Grumman Corporation is inviting both active employees and retirees to pitch in and volunteer during their spare time. The effort is being coordinated by Sharon Grosser, manager of Community Support Programs, and Jack Carroll, Grumman Corporation vice president for Community Relations.

Picking up the slack

"Volunteer organizations have seen a lot of funding cutbacks," says Grosser. "President Reagan and Education Secretary Bell are asking corporations to pick up the slack — not just with monetary donations, but with people as volunteers in their communities."

To organize and train Grummanites as tutors, Grumman is working with the Literacy Volunteers of Long Island, Inc., headquartered in Hempstead. A start-up meeting will be held September 20 at 5 p.m. in conference room A of the Grumman headquarters building. At that time, representatives from Literacy Volunteers will explain to interested Grummanites just what is entailed by being a volunteer.

Hoping for a 100

Grosser hopes about 100 Grummanites will sign up through announcements in *Plane News*, Grumman Data Systems *Data News*, and other means. Already about a dozen have signed up in response to an announcement that recently ran in the retiree newsletter. Grosser says some people will undoubtedly drop out after the initial meeting, due to schedule conflicts. She notes that a minimum of 30 people must sign up for training in order for Literacy Volunteers to conduct the series of training classes.

Classes will begin on October 1, and volunteers will meet each Tuesday and Thursday evening for a total of seven classes. Each training session runs for three hours — from 5 to 8 p.m.

The only minimum requirement for the prospective volunteer is a high school diploma — it's also recommended that he or she own a car. Literacy Volunteers will provide an instructor, and Grumman will underwrite the cost of the training materials. Not everyone who signs up will make it through the training regimen, Grosser cautions, since not everyone is qualified to be a literacy volunteer.

Setting a schedule

Upon successfully completing the class, each volunteer will be assigned to a student. Volunteers must meet with their students at least once a week, but can pick a time when it is convenient for them both. Literacy Volunteers also recommends spending at least one year tutoring a student.

The questionnaire Grosser is distributing asks prospective volunteers where they would like to teach — the program will try to match them up with people living near work or home. There's no shortage of students — Literacy Volunteers has a waiting list of 400 people in Nassau County who desire reading assistance. And the students range from the totally illiterate to those who read slowly or laboriously and are poor spellers.

Each volunteer has a lot of autonomy regarding lesson planning — this is covered during the training classes. If they need any assistance, volunteers can contact Grosser or Literacy Volunteers. The latter also maintains a library of reading materials that can be borrowed by volunteers if needed.

"The number-one quality is patience," Grosser states. "If you don't have that, it's not going to work. And give yourself at least a year — it may take less time than that."

Success story

Wagner first learned about the Literacy Volunteers through an article in *Grumman World* last winter. The idea appealed to him because he knew he'd have spare time during his retirement.

Wagner's student is a 25-year-old man who dropped out of high school. The student has one long-term goal: to return to school to receive his high school equivalency diploma. Of a more immediate nature, Wagner and he agreed on a short-term goal as well: since he is a poor speller, the student is attempting to learn 300 commonly misspelled words by Labor Day.

"I think we'll accomplish that," says Wagner. "My student has shown up for every session. He is making progress. If he showed any lack of interest, I'd be discouraged. So far, it's been great."

'You set your own goals'

Wagner, an engineering manager when he retired who most recently worked on the Hydrofoil program in Israel and Florida, says the literacy volunteers program has a lot of appeal for retired business people.

"The students are asking for help, so you start from the premise that they're motivated. That makes it pretty easy," he says. Also, "this seemed like something nice to do and it is. You're working by yourself, you set your own goals. This, as opposed to some other types of volunteer work, where you're sort of a 'go-fer.' I highly recommend it."

Anyone interested is invited to fill out the coupon below. If the initial effort is successful, it may become an ongoing program at Grumman. If you want further information, contact Sharon Grosser at Ext. (111) 53254.

I want to volunteer

I am interested in becoming a literacy volunteer. Please send me additional information and an application form.

Name .....

Address .....

Phone .....

Mail Stop & Extension (active employees)

Mail to: Sharon Grosser, A27-GHQ

Retiree Obituaries

John H. Kuck of 23 Willets Place, Huntington Station, died July 17, 1984. He retired in 1967.

Anthony DiStefano of Roll-in-Park, 65 Third St., Calverton, died July 17. He retired in 1976.

Oscar Rockefeller of 25 Barbara St., Bethpage, died July 10. He retired from Grumman in 1982.

Frederick M. Anton of 3 Melwood Dr., Commack, died July 18. He retired in 1971.

Mildred Morselli of Holiday Village Lot 115, 1000 SW 27th Ave., Vero Beach (FL), died July 20. She retired in 1968.

Raymond Seamon of 1003 Cornwall Ave., Baldwin, died July 12. He retired in 1972.

Myron Combes of 769 Grand Terr Ave., Baldwin, died July 14. He retired in 1969.

Walter Frahm of 3596 Boussock Lane, Oceanside (CA) died July 12. He retired in 1970.

Charles Buzzetta of Narcissus Rd., Mastic Beach, died July 8. He retired in 1970.

Carpools

Northport to Bethpage: interested in forming car pool, hours 8 a.m. to 4:30 p.m. call P. Gregori, Ext. 5526

Unit values

The following are unit values for the Grumman Employee Investment Plan as of June 30, 1984. They are compared to the previous month's unit values (as of May 1984).

Equity Fund
2.238 up from 2.201

Fixed Income Fund
3.548 up from 3.509

Guaranteed Income Fund
1.836 up from 1.819

Company Stock Fund
$26.06 up from $23.25

scorecard

Summer blossoms

There were 114 beautiful entries of flowers and houseplants at the Garden Forum's Annual Summer Flower Show on July 17 in the Plant 5 cafeteria.

"The three judges from the National Council of Flower Shows appeared to like the color yellow," said one contestant. "Although yellow is a popular color for this time of year."

The best-of-show award was presented to Jane Kingsley, a librarian coordinator in Plant 5's Data Bank, for a beautiful stem of lilies. This was the first time that Jane had ever entered a Grumman Flower Show. Jane was persuaded by a friend and co-worker to enter the show. "She really pushed me to enter, I wouldn't have entered otherwise," Jane said.

Here are the winners in order of placement in nine of the classes:

Daylily: Pete Mirabella, Dot Kappenberg, Amy Blackwell.

Lily: Kingsley, Blackwell, Kappenberg, Marie Bennett.

Rose: Blackwell, Peg Hanak.

Gladiolus: Marilyn Duffy, Joan Blitzer.

Novice: Diane Crowe, Jo Monza, Charles Kocka, Ed Vasta.

Arrangements: Kappenberg, Betty McLean, Crowe, Blackwell.

Single Seasonal: Georgina Nurenberger, Blackwell, Anthony Millett, Judy Cote.

Seasonal Collection: Kingsley, Blackwell, Cote, Bennett.

Houseplants: Cote, Blackwell, McLean, Kappenberg.

Hanging Houseplants/Baskets: Vasta, Artie Schwenker, McLean, Mary Glazek.

Incentive Awards: Elaine Hopkins, Irene Mahon, Vasta, Blackwell.

Lily of the day. *Jane Kingsley, a Plant 5 Data Bank librarian coordinator, accepts her top prize from vice president Ray Nightingale for her perfect yellow lilies.*

Varsity big bats

The Grumman men's varsity softball team is competing in two leagues on Long Island this year and the Tomcats are slugging away at a better than .500 winning percentage.

The team has compiled a record of 11 wins and five losses in the Major A division of the Cantiaque Park league in Hicksville. Further east, they are 12-10, good for second place in the Major A division of the Brookhaven league of Suffolk.

The team is characterized this season by powerful hitting. Leading the unit with a batting average of .676 is Karl Komyathy. Karl is a rookie shortstop from St. John's University who has compiled 50 runs-batted-in (RBIs) already this year as well as smacking 10 home runs.

Tied for the RBI lead with Karl at 50 is first baseman and outfielder Nick Catania, who leads the Tomcats in home runs with 11 while batting at a .548 clip. Larry Bates is right behind Karl and Nick, batting .580 with eight home runs and 30 RBIs.

Strong defense is also a big plus for the Tomcats, with at least one or more double plays executed in each game this season.

Four wallers. *Quick reactions and stamina were the winning ingredients for the champions of the 1984 Grumman Racquetball League Tournament. This year's winners are (L to R) Mark Sanders, league president; Gerry Pagano, first place; Danny Nieves, second place; and Barry Schneider, third place.*

Handicapped billiards

Grumman Recreation is sanctioning a winter handicap pocket Billiards league this year. An organizational meeting will be held on August 21, at 5 p.m. in GRA's Plant 28A auditorium.

Playing rules and schedules will be discussed. Anyone interested in joining the winter league must fill out the application on this page and send it to Grumman Recreation, mail-stop A01-28A. League matches will be played at the House of Lords' billiard hall located on South Oyster Bay Road. For further information, contact Mike Cherry in the GRA office, Ext. 52133.

Sun state sojourn

Grumman Recreation is offering a Florida tour for November 7—14 that will include round-trip motor coach transportation and motel accommodations for seven nights.

The package price of $315 (per person/double occupancy) also includes the services of a tour director for the entire trip and admission to the Walt Disney Epcot Center. Grumman Retiree Club members are eligible for a Reunion Dinner and Picnic to be held on November 9 and 10, respectively. A tour of Kennedy Space Center will also be offered on Saturday, November 10.

For information or reservations, contact Recreation at (516) 575-2133.

calendar

French Club: Tues., August 14th and 28th, 108 N. Windhorst Ave., Bethpage, 5:30 p.m. Guests welcome. L. Kaufman, Ext. 52323.

Grumman Family Campers: August 31 thru September 3 Great River, September 21 thru 23 Nassau Beach, October 5 thru 8 Atlantic City, New Jersey. Guests welcome. Al Hanes, 391-6512.

Grumman Flying Club: Mon., August 20, Boces Bldg., Hicksville, 5:15 p.m. Monthly membership meeting. Bob Schulte, Ext. 50682.

Grumman Scuba Divers Club: Wed., September 12, Fox Hunt, Hicksville, 7:30 p.m. Guests welcome. P. Craig, Ext. 55256.

Pocket Billiards Handicap League

Name..... Ext .....

Perm. No..... Mail stop .....

service milestones

This issue features those Grummanites who celebrate 15 and 20 years with the company this month. Other anniversarians will be listed in the August 24th issue.

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Octave G. Pekar, Stockrooms (1)
John F. O'Rourke, Proj. Office F-14 (1)
Tingshui Chow, ILS RF Eng. (1)
Charles R. Hotz, Software Sys. Proj. Mgmt. (1)
Arthur L. Morgan Jr., Veh. Lia. Eng. (1)
Frank A. Staiano, Prog. Qual. Mgmt. (1)
Walter Bertsch, Saw (2)
Leroy Madison Jr., Heat Treat (2)
Martin E. Susa, Stress & Hot Form (2)
Elmore N. Reavis, Prod. Plt. Mgmt. (2)
George J. Buckley, Prod. Cont. — Parts Cont. (2)
John Ingrassia, Form Block (2)
Ernest F. Swedberg, Conv. Mach. (3)
Joseph Cange, Conv. Mach. (3)
Frank A. Leotta, Conv. Mach. (3)
Eugene E. Trosko, Conv. Mach. (3)
Charlotte L. Auricchio, Assy. (3)
John T. Ebron, Assy. (3)
Moses Ebron Jr., Join & Mid Mod Install. (3)
Robert J. Nagy, Mach. Oper. — Tech. Serv. (3)
Gilbert H. Kelley, Therm. Sys. (4)
Jonas A. Bilenas, Therm. Sys. (4)
Thomas J. Fitzgerald, Corp. Inst. Sys. (4)
George F. Rasmussen, Maint. (5)
Clifford N. Stahl, Struct. Test (5)
Eli Botkin, Sys. Cost/Perf. Anal. (5)
Frank J. Murphy, Software Anal. (5)
Kenneth S. Child, Matl. Serv. Eng. (5)
Martin Godofsky, Ops. Anal. (5)
Robert Fodale, Corp. Inst. Sys. (5)
Everett K. Budd, Corp. Inst. Gd. Test (5)
Joshua Heisman, Fld. Ops. (5)
William M. Shay, Bus. Mgmt. & Anal. (5)
Robert Wenzler, P.A. Mgmt. (5)
Sandra Pogue, Ind. Eng. (6)
James T. McGuire, Simu. Dev. & Eval. (7)
Carl Rosenberg, Simu. Dev. & Eval. (7)
Bertram Winston, Software Supt. (7)
Murray Keitel, Corp. Inst. Sys. (7)
Louis F. Casagrande, Propl. & Fld. Sys. Supt. (7)
William Drower, Elect. Prod. Supt. (7)
Thomas A. Maltese, Elect. Test. (8)
Donald M. Mazur, Mfg. Prog. Mgmt. (9)
William H. Shaw, Grumman Allied (9)
Harry J. Anderson, Prog. Mgmt. — Comm. (9)
Domenick J. Gargiulo, Pwr. Plt. Des. (9)
William P. Bierds, Veh. Struct. Anal. (9)
Jack L. Fox, Sys. Anal. (9)
Alan E. Lager, Conf. Data. Mgmt. (9)
James A. Hilker, Comp. Arch. (14)
Albert J. Muller, Elect. Mech. Des. (14)
John R. Anderson II, Lab. Mgmt. (14)
Julius Ditman, Eng. Res. Mgmt. (14)
Ronald C. Keller, ILS Prod. (15)
Thaddeus R. Kosinski, Insp. Mach. Parts (24)
Kevin P. Ryan, Mfg. Prog. Mgmt. (25)
John J. Comerford, ILS RF/Servo Eng. (25)
Alfonso Gennarelli, ILS Tech. Dir. (25)
Gilbert L. Parachini, ILS Sys. Concepts (25)
Charles E. Frattini, ILS Supply Ops. (25)
Richard G. Kaicher, Commun. Nav. (25)
Paul Schiffres, Radar (25)
Carl J. Pesce, Elec. Mech. Des. (25)
Stephanie Albinski, Prog. Mgmt. — Space (25)
Joseph E. Malat, Corp. Proc. (28)
George H. Watjen, Invent. Cont. (30)
Edward Andreassen, Proc. Serv. (30)
Frank Eisinger, Sub. Sys. (30)
Francis J. Newell, Mach. Parts/Matl. (30)
Louise R. Rossi, Mach. Parts/Matl. (30)
Anthony A. Stallone, Gen. Subcont. (30)
Werner Dauber, Gen. Subcont. (30)
Richard Powlowski, Audit Lia. (30)
Stanley Mendelsohn, Loads & Criteria (35)
Karl H. Rehm, Reli. (35)
Thomas J. Dragone, Software Sys. Arch. & Des. (35)
Paul Power Jr., Matl. & Struct Mech. (30)
Annette C. Frisch, Eng. Serv. (35)
Helen J. Fogle, ILS Sect. Serv. (40)
Arthur M. Cohen, Inventory Mgmt. (40)
Joseph U. Verzulli, Radar (40)
Murray Romano, Elect. Equip. Des. (40)
Joseph D. Maniscalchi, Elect. Mech. Des. (40)
Vincent J. Corrado, Prod. Prog.
William Fischbach, Prog. Cont. (40)
Frank Ramacca, Adv. Prog. (43)
John M. Browne, Prod. Cont. (43)
George L. Shugarts, Prod. Cont. (43)
Ronald Renick, Resources (43)
Cleveland C. Jones Jr., Admin. (43)
Lionel Wellington, Prod. Supv. (44)
George J. Feres, Lia. (66)
Roy E. Appelgate Jr., E-2C Wings/F-14 Weapons (77)
Michelangelo Colletti, Personnel & Admin. (77)
Charles P. Harris, Engineering (88)
Warren I. Hlinka, Engineering (88)
Gordon C. Parker, Inf. Res. Mgmt. (105)
John A. Allsopp, ILS Test Prog. Mgmt. (106)
William H. Rehm, ILS Sub-Sys. Eng. (110)
John J. Barrett, ILS Training (110)
Irving Miller, Operations (110)
Ann M. Korothy, Grumman Corp. (111)
Joan Cetta, Grumman International (111)
George W. Barnes, Struct. Des. (272)

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Alice R. Serpico, ILS Sect. Serv. (1)
Thomas H. Doxsee, Prod. Plann. (2)
Kathleen McGuire, Parts Paint (3)
Philip Tortu, Det. Parts Fab. (3)
Lonnie T. Dennis, Corp. Plan. Cntrl. & Budg. (5)
Anthony G. Castellano. Elect. & Des. Stf. (6)
Charles A. Sewell, Flt. Crew (7)
Wayne R. Winokur, Prog. Cont. (9)
Anna L. Spirek, Mail Serv. (15)
David Kleiman, ILS Tech. Writing (15)
Kenneth C. O'Neil. Plt. Prot. (18)
Albert G. Tobin, Matl. & Struct. Mech. (26)
Joseph L. Sinicki, Pricing & Anal. (30)
Vicki Kosnoski, Supplier Cont. (30)
Gilbert C. Carpenter Jr., Sys. Sci. (35)
William J. Sirico, R. C. Mgmt. (43)
Dennis C. Klingener, Liaison (66)
William J. Turner, Sub. Assy. (66)
Peter E. Klug, Tech. Ops. (77)
Judith K. Porter, Qual. Cont. (77)
Frances Jones, Res. Plann. & Anal. (77)
Sally C. Hunter, Grumman Allied (111)
Anthony J. Schumacher Jr., Fld. Ops. (280)
Charlotte Craft, Grumman Technical Services

Personals

My family and I wish to express our sincere thanks to my friends and co-workers for their kind expression of sympathy during the recent loss of my mother. John M. Papazian

My family and I wish to express our sincere thanks and appreciation to my friends, co-workers in Grumman Aerospace Payroll Dept. and ESO for their kind expressions of sympathy during the recent loss of my sister. George W. Denue

My family and I wish to thank our friends at Grumman for their kind expressions of sympathy and donations to Mercy Hospital Infant Apnea Center following the loss of my grandson, William F. Lombardi. Rov Handwerk

I wish to express my sincere thanks and appreciation to my friends, co-workers and everyone at Plant 77 for their kind expressions of sympathy during the recent loss of my wife Wanda. It is times like this when you truly realize what they mean by the "Grumman Family." Bradly R. Pawlak

Our family wishes to thank all of our many friends and co-workers for their expression of sympathy and kindness during the recent loss of our mother. Alfred and Joseph Berka

Next Issue: Aug. 24

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